

REMARKS

The foregoing Amendment is filed in response to the official action dated January 2, 2009. Reconsideration is respectfully requested.

The status of the claims is as follows.

Claims 1-11, 13, 15-32, 34, 36-37, 39, 42, and 44 are currently pending.

Claims 1-11, 13, 15-32, 34, 36-37, 39, 42, and 44 stand rejected.

Claims 1, 11, 22, 32, 36-37, and 41-42 have been amended.

The Examiner has rejected claims 1, 22, 36, and 41 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10 and 14 of U.S. Patent No. 7,391,872. The Applicant respectfully submits herewith a terminal disclaimer for use in overcoming these rejections based on the nonstatutory double patenting ground. In addition, the Applicant respectfully traverses the Examiner's taking of Official Notice that a system including a telephone system and a directed acoustic sound system is well known in the art, as further discussed in the Applicant's comments below. Accordingly, it is respectfully submitted that the rejections of claims 1, 22, 36, and 41 on the ground of

nonstatutory obviousness-type double patenting should be withdrawn.

The Examiner has rejected claims 1-3, 8-9, 18-19, 22-24, and 29-30 under 35 U.S.C. 102(b) as being anticipated by Pompei (U.S. Patent Pub. 2001/0007591; the "Pompei reference"). The Applicant respectfully submits, however, that base claims 1 and 22, as amended, and the claims depending therefrom, recite non-obvious subject matter that distinguishes over the art of record, and therefore the rejections of claims 1-3, 8-9, 18-19, 22-24, and 29-30 under 35 U.S.C. 102 should be withdrawn.

For example, amended base claim 1 recites the following:

"A system, comprising:
 an electronic entertainment system including at least one source of audio signals, the audio signals corresponding to at least one audio channel; and
 a directed acoustic sound system including:
 a modulated signal generator configured to generate an ultrasonic carrier signal modulated with at least one of the audio signals;
 a driver amplifier configured to amplify the modulated ultrasonic carrier signal; and
 at least one directional loudspeaker, the directional loudspeaker including at least one acoustic transducer configured to receive the modulated ultrasonic carrier signal amplified by the driver amplifier, and to project a sound beam representing the modulated ultrasonic carrier signal through a propagation medium along a pre-selected path, thereby reproducing the at least one audio signal and generating directional sound along at least a portion of the path."

The official action indicates that the Pompei reference generally discloses the system of base claim 1, but further indicates that it is inherent that the audio source disclosed in the Pompei reference is an audio signal generator of an electronic entertainment system. The Applicant respectfully points out, however, that in order for a single reference to inherently anticipate a claim under 35 U.S.C. 102, following the reference teaching must inevitably produce the claimed subject matter. The Applicant respectfully submits that following the disclosure of the Pompei reference does not inevitably produce the subject matter of amended base claim 1.

For example, the official action indicates that page 2, paragraph [0022] ("Fig. 1 - multiple channels 102-104, generated plurality of audio signals"), of the Pompei reference inherently teaches the limitation "an electronic entertainment system including at least one source of audio signals, the audio signals corresponding to at least one audio channel", as recited in amended base claim 1. The Applicant respectfully submits, however, that following the teaching of the Pompei reference relating to the audio signal sources 102-104 does not inevitably produce the subject matter of amended claim 1 because the Pompei reference does not appear to provide any teaching or suggestion

whatsoever that the audio signal sources 102-104 can be an electronic entertainment system such as a television, a radio, a compact disk player, a video game, a digital video disk player, an Internet radio, an MP3 system, or any other suitable type of electronic entertainment system, as taught in the present application (see, e.g., page 1, line 26, to page 2, line 3, of the application).

As disclosed in the present application, by providing electronic entertainment systems and any other suitable sound-generating systems and devices with directed acoustic sound, individuals can listen to such systems without unduly distracting others in the general vicinity of the system (see page 5, lines 18-22, of the application). Because following the teaching of the Pompei reference does not inevitably produce the subject matter of amended base claim 1 nor the benefits derived therefrom, the Applicant respectfully submits that the Pompei reference does not anticipate amended claim 1 and the claims depending therefrom. For at least the reasons discussed above with reference to amended claim 1, the Applicant further submits that the Pompei reference does not anticipate amended base claim 22 and the claims depending therefrom.

In addition, the Applicant respectfully submits that following the teaching of the Pompei reference relating to the audio signal sources 102-104 does not inevitably produce the subject matter of amended base claims 36 and 41, including the limitations relating to "a telephone system", e.g., "a telephone system including a receiver configured to receive information representative of at least one audio signal", as recited in amended claim 36. This is because the Pompei reference does not appear to provide any teaching or suggestion whatsoever that the audio signal sources 102-104 can comprise portions of a speakerphone, also known as a "hands-free" telephone system, as taught in the present application (see page 22, line 25, to page 23, line 12, of the application). Moreover, the Pompei reference does not appear to provide any teaching or suggestion relating to the benefits derived from a telephone system configured with directed acoustic sound, such as the benefit of being able to avoid distracting others while enhancing the privacy of the person using the phone (see page 5, lines 13-17, of the application). For at least these reasons, the Applicant respectfully submits that the Pompei reference does not anticipate amended base claims 36 and 41 and the claims depending therefrom.

Accordingly, it is respectfully submitted that the rejections of claims 1-3, 8-9, 18-19, 22-24, and 29-30 under 35 U.S.C. 102 should be withdrawn.

The Examiner has rejected dependent claims 5-7 and 26-28 under 35 U.S.C. 103(a) as being unpatentable over the Pompei reference in view of Hirayanagi *et al.* (USP 6,445,804; the "Hirayanagi reference"). The Applicant respectfully submits, however, that the Hirayanagi reference does not appear to remedy the deficiencies of the Pompei reference, and therefore the combined teachings of the Pompei and Hirayanagi references would not suggest to one of ordinary skill in this art at the time of the invention the subject matter of claims 5-7 and 26-28. Accordingly, it is respectfully submitted that the rejections of claims 5-7 and 26-28 under 35 U.S.C. 103 should be withdrawn.

For example, dependent claim 5 recites the following:

"The system of claim 1:

wherein the directional loudspeaker is a parametric array;

wherein the system further includes a parametric array processor configured to control the parametric array, and at least one sensor configured to detect a distance from the directional loudspeaker to a user of the system; and

wherein the parametric array processor is configured to allow at least one parameter thereof to be adjusted based upon the detected distance from the directional loudspeaker to the user of the system."

(emphasis added)

The official action indicates that the Pompei reference generally discloses the system of dependent claim 5, but fails to disclose the system including at least one sensor configured to detect a distance from the directional loudspeaker to a user of the system, wherein the parametric processor is configured to allow at least one parameter thereof to be adjusted based on the directed distance from the directional loudspeaker to the user of the system. The official action goes on to indicate that the Hirayanagi reference discloses the limitations missing from the Pompei reference.

Specifically, the Hirayanagi reference discloses echo-ranging technology that employs an ultrasonic signal, in which the radius of curvature of a reflecting panel is adjusted to redirect the ultrasonic beam, thereby focusing the ultrasound at a specific location to create a "virtual source" in mid-air. As disclosed in the Hirayanagi reference, if the distance to the listener is known, then the virtual source can be made to appear at a consistent position relative to the listener (see column 7, lines 48+, of the Hirayanagi reference).

The Applicant respectfully points out, however, that in order to make the virtual source of the Hirayanagi reference appear at a consistent position relative to the listener, the focus of the

reflecting panel, specifically, a reflection plate curve ratio, must be adjusted. As disclosed in the Hirayanagi reference, an adjustment of the reflection plate curve ratio can be achieved in a number of ways, such as by a reflecting plate mover 63 that applies a pulling or pushing force to the rear part of the reflecting plate in response to a pulse signal, by a reflecting plate adjuster 73 that grabs the peripheral edge of the reflecting plate and changes the position of the peripheral edge so as to change the curve rate of the reflecting plate, or by a thermal curve rate transducer 83 that causes the curve rate of the reflecting plate to change in response to an amount of thermal energy (see column 6, lines 33-60, of the Hirayanagi reference).

In contrast, dependent claim 5 recites that "the parametric array processor is configured to allow at least one parameter thereof to be adjusted based upon the detected distance from the directional loudspeaker to the user of the system". The Applicant respectfully submits that the Hirayanagi reference does appear to teach or suggest adjusting a parameter of a parametric array processor, or any other type of processor, based upon the detected distance from the directional loudspeaker to the system user, as specifically recited in claim 5. Instead, as discussed above, the Hirayanagi reference teaches the significantly different approach

of adjusting a reflection plate curve ratio by pulling or pushing the rear part of the reflecting plate in response to a pulse signal, grabbing the peripheral edge of the reflecting plate to change the position of the peripheral edge, or applying an amount of thermal energy to the reflecting plate.

For at least the reasons discussed above, the Applicant respectfully submits that the combined teachings of the Pompei and Hirayanagi references would not suggest to one of ordinary skill in this art at the time of the invention the subject matter of dependent claim 5 and claims 6-7 depending therefrom. In addition, for at least the reasons discussed above with reference to dependent claim 5, the Applicant further submits that the combined teachings of the Pompei and Hirayanagi references would not suggest to one skilled in this art at the time of the invention the subject matter of dependent claims 26-28. Accordingly, it is respectfully submitted that the rejections of claims 5-7 and 26-28 under 35 U.S.C. 103 should be withdrawn.

The Examiner has rejected claims 36 and 41 under 35 U.S.C. 103(a) as being unpatentable over the Pompei reference. The Applicant respectfully submits, however, that base claims 36 and 41, as amended, and the claims depending therefrom recite non-obvious subject matter that distinguishes over the art of record,

and therefore the rejections of claims 36 and 41 under 35 U.S.C. 103 should also be withdrawn.

Specifically, the official action indicates that the Pompei reference generally discloses the system and method of base claims 36 and 41, respectively, but fails to disclose the system comprising a telephone system. The official action goes on to take Official Notice that such a system comprising a telephone system is well known in the art. However, the Applicant respectfully traverses the taking of Official Notice that a system and method comprising a directed acoustic sound system, and further comprising a telephone system, as recited in amended base claims 36 and 41, is well known in the art. For example, such a system and method provides the benefit of being able to avoid distracting others while enhancing the privacy of the person using the phone (see page 5, lines 13-17, of the application). The Applicant respectfully submits that the Pompei reference does not appear to provide any teaching or suggestion whatsoever relating to configuring a telephone system with directed acoustic sound, nor the benefits derived therefrom.

Moreover, the Applicant respectfully requests that he be provided with the explicit basis upon which the Examiner regards the matter as subject to Official Notice, so as to allow him to

adequately traverse the rejection in his reply to the next Official communication. Otherwise, it is respectfully requested that these rejections of amended base claims 36 and 41 under 35 U.S.C. 103 be withdrawn.

The Examiner has rejected dependent claims 4, 10-11, 13, 25, 31-32, 34, 37, 39, 42, and 44 under 35 U.S.C. 103(a) as being unpatentable over the Pompei reference in view of Norris *et al.* (USP 6,229,899; the "Norris reference"). The Applicant respectfully submits, however, that the Norris reference does not appear to remedy the deficiencies of the Pompei reference, and therefore the combined teachings of the Pompei and Norris references would not suggest to one skilled in this art at the time of the invention the subject matter of claims 4, 10-11, 13, 25, 31-32, 34, 37, 39, 42, and 44.

For example, with regard to dependent claims 10 and 31, the official action indicates that the Pompei reference generally discloses the system and method of claims 10 and 31, respectively, but does not limit the system to be selected from the group consisting of a television, a radio, an audio tape player, a phonograph, a compact disk player, a digital video disk player, a laser disk player, a video game, a desktop computer, a laptop computer, and an MP3 system. The official action goes on to

indicate that the Norris reference discloses a system including a television. The Applicant respectfully submits, however, that the system disclosed in the Norris reference does not include a television, but merely includes a conventional sound system 10 (see column 4, lines 15-16, and Fig. 1, of the Norris reference). The Norris reference does not appear to contemplate including any system other than the conventional sound system 10 within the multi-speaker system disclosed therein.

Moreover, with regard to amended dependent claims 11 and 32, the official action indicates that the Pompei reference generally discloses the system and method of amended claims 11 and 32, respectively, and that the Norris reference discloses limitations of amended claims 11 and 32 that are missing from the Pompei reference. The Applicant respectfully submits, however, that the official action appears to have failed to consider all of the limitations of amended claims 11 and 32. For example, the official action does not appear to have considered the limitations "wherein the modulated signal generator is configured to selectably generate the ultrasonic carrier signal modulated with the at least one of the audio signals", and "wherein the second amplifier is configured to selectably amplify the one or more audio signals, thereby allowing the directional loudspeaker for

generating directional sound and the non-directional loudspeaker for generating omni-directional sound to selectably reproduce the audio signals" (emphasis added), as recited in amended claim 11. In fact, the Norris reference does not appear to contemplate designing a system that can select between directional listening using directional loudspeakers and omni-directional listening using only traditional non-directional loudspeakers, as specifically recited in amended claims 11 and 32.

For example, the Norris reference discloses the sound system 10, which includes conventional speakers 30 and parametric speakers 20, 21, 22. As known in the art, the conventional speakers 30 disclosed in the Norris reference are operative to generate omni-directional sound. The Applicant respectfully points out, however, that, unlike the directional loudspeaker recited in amended claim 11, the parametric speakers 20, 21, 22 disclosed in the Norris reference are not used to generate directional sound, but are instead used to generate omni-directional sound, as explained in the following passage taken from the Norris reference:

"Because of the highly directional nature of such parametric speakers, listeners outside the general direction of ultrasonic projection will not hear the emitted audio sound waves until reflected from wall, floor or ceiling 12, 13, 14 or 15. Once reflected, however, the sound disperses in a generally

omnidirectional pattern 46a, with the apparent source of the sound being the reflected surface which is typically distant from the actual emitter source." (emphasis added) (see column 4, lines 57-65, of the Norris reference)

Because the Pompei reference and the Norris reference, taken alone or in proper combination, do not teach or suggest the limitation "wherein the second amplifier is configured to selectably amplify the one or more audio signals, thereby allowing the directional loudspeaker for generating directional sound and the non-directional loudspeaker for generating omni-directional sound to selectably reproduce the audio signals", as recited in amended claim 11, the Applicant respectfully submits that the combined teachings of the Pompei and Norris references would not suggest to one skilled in this art at the time of the invention the subject matter of amended claim 11. Moreover, for at least the reasons discussed above with reference to amended claim 11, the Applicant further submits that the combined teachings of the Pompei and Norris references would not suggest to one skilled in this art at the time of the invention the subject matter of amended claim 32.

Accordingly, it is respectfully submitted that the rejections of claims 4, 10-11, 13, 25, 31-32, 34, 37, 39, 42, and 44 under 35 U.S.C. 103 should be withdrawn.

The Examiner has rejected dependent claims 15 and 20-21 under 35 U.S.C. 103(a) as being unpatentable over the Pompei reference. As discussed above, however, because following the teaching of the Pompei reference does not inevitably produce the subject matter of amended base claim 1, the Pompei reference does not anticipate amended claim 1 and the claims depending therefrom. Accordingly, it is respectfully submitted that the rejections of dependent claims 15 and 20-21 under 35 U.S.C. 103 should be withdrawn.

The Examiner has rejected claims 16-17 under 35 U.S.C. 103(a) as being unpatentable over the Pompei reference in view of Andrews *et al.* (USP 7,181,023; the "Andrews reference"). The Applicant respectfully submits, however, that the Andrews reference does not appear to remedy the deficiencies of the Pompei reference, and therefore the combined teachings of the Pompei and Andrews references would not suggest to one skilled in this art at the time of the invention the subject matter of claims 16-17. Accordingly, it is respectfully submitted that the rejections of claims 16-17 under 35 U.S.C. 103 should be withdrawn.

In view of the foregoing, it is respectfully submitted that the present application is in a condition for allowance. Early and favorable action is respectfully requested.

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The Examiner is encouraged to telephone the undersigned Attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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